TITLE: ABDOMINAL EXERCISER

BACKGROUND OF THE INVENTION

(a) Technical Field of the Invention

The present invention relates to exerciser, and in particular, to an exerciser for use to exercise the abdomen of a human body.

(b) Description of the Prior Art

Taiwanese Utility Model Publication No. 309775, entitled "Multifunctional Sit-Up Exerciser", No. 354904, entitled "Multifunctional Sit-Up Exerciser", No. 368879, entitled "Waist and Abdomen Exerciser" and No. 494775, entitled "Sit-up Exerciser" disclose exercisers for abdomen of the user. These exercisers employ plate bodies or metal tubes pivotally joined together to form the structure of the exercisers. The drawbacks of these structures are that thee structure is not rigid and the strength is insufficient and therefore it is shaky when in use. In other words, the possible of dislocation between the joints of the structure may impose a great impact to the safety of the exercisers. Accordingly, it is an object of the present invention to provide an abdominal exerciser which mitigates the above drawbacks.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide an abdominal exerciser having a framework mounted with a moveable mechanism characterized in that the moveable mechanism has a main shaft end portion mounted with a leg-hooking module and the top face of the end of the main shaft is a seat pad, and the two lateral walls of the main shaft corresponding to the middle section of the seat pad is protruded with a hollow inner clutching member, the end face of the hollow clutching member corresponding to one lateral side of the leg-hooking module is protruded with a protruded engaging block, and the internal of the inner clutching member is provided with a rod for pivotal mounting, and the framework includes a firs supporting frame and a second supporting frame, and the top portion of the two ends of the first supporting frame is a first clutching member which corresponding to the rod, and the first clutching member is mounted at the external side of the clutching member at the main shaft, the end faces of the two lateral side of the first clutching member are formed into protruded engaging block which is different from the protruded engaging block of the inner clutching member, and the top portion of the two ends of the second supporting frame is formed into the second clutching member which can be pivotally mounted to the rod, and the second mounting member is mounted at

the external side of the first clutching member, and the second clutching member corresponding to the end face at one side of the first clutching member is formed into a protruded engaging block, and the protruded engaging block and the protruded engaging block is different from that of the first clutching member, thereby an abdominal exerciser is obtained.

Yet another aspect of the present invention is to provide an abdominal exerciser having a framework mounted with a moveable mechanism, characterized in that the moveable mechanism has a main shaft end portion mounted with a leg-hooking module, and the top face of the end of the main shaft is provided with a seat pad, and the main shaft between the two securing plates is provided with a twisting module, and the twisting module is provided with a clutching seat corresponding to and rotating about the bottom face of the main shaft, and the end face of the two lateral side of the clutching seat corresponding to one side of the leg-hooking module is protruded with a protruded engaging block, and within the clutching seat a horizontal shaft is provided for the mounting of the framework; the framework includes a first supporting frame and a second supporting frame, and the top portion of the two ends of the first supporting frame is a first clutching member which corresponding to the rod, and the first clutching member is mounted at the external side of the clutching member at the main shaft, the end faces of the

two lateral side of the first clutching member are formed into protruded engaging block which is different from the protruded engaging block of the inner clutching member, and the top portion of the two ends of the second supporting frame is formed into the second clutching member which can be pivotally mounted to the rod, and the second mounting member is mounted at the external side of the first clutching member, and the second clutching member corresponding to the end face at one side of the first clutching member is formed into a protruded engaging block, and the protruded engaging block and the protruded engaging block is different from that of the first clutching member, thereby an abdominal exerciser is obtained.

Still another object of the present invention is to provide an abdominal exerciser, wherein the main shaft is mounted with a hollow clutching member and the bottom edge of the clutching member is formed into a protruded engaging block, and the interior of the clutching member is mounted with a downward facing pivotal shaft for the mounting of a clutching seat, and the clutching seat has a hollow upright tube and a hollow horizontal tube, and the top face of the upright tube is formed into a protruded engaging block which can be placed at the bottom end of the clutching member, and the protruded engaging block at the end face of the two lateral side of the clutching seat is formed at the end face of the horizontal tube and the horizontal tube of the

clutching seat is used for the passing through of the clutching seat so that the moveable mechanism is pivotally mounted to the framework.

The foregoing object and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective exploded view of the abdominal exerciser in accordance with the present invention.

FIG. 2 is a plan view after extension of the exerciser of the present invention.

FIG. 3 is a plan view after the folding of the exerciser of the present invention.

FIG. 4A, 4B, 4C are sectional views of the exerciser after the exercise is folded.

FIG. 5A, 5B, 5C are sectional views of the exerciser after the exerciser is extended to be used by user in accordance with the present invention.

FIG. 6 is a schematic view showing the movement of the leg-hooking rod in accordance with the present invention.

FIG. 7 is a schematic view showing the application of the exerciser in accordance with the present invention.

FIG. 8 is another schematic view showing the exercising of the buttock of the user in accordance with the present invention.

FIG. 9 is another schematic view showing sit-up exercising in accordance with the present invention.

FIG. 10 is a perspective exploded view of another preferred embodiment

of the present invention.

FIG. 11A, 11B are sectional views of another preferred embodiment of the present invention.

FIG. 12A, 12B are schematic views showing the exercising of the waist of the user in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The following descriptions are of exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

Referring to FIGS. 1 and 2, there is shown an abdominal exerciser having a framework 30 pivotally mounted with a moveable mechanism 10 and the mechanism 10 allowing the user to sit thereon and the framework 30 is retractable and folded.

Referring together with FIG. 3, the moveable mechanism 10 comprises a main shaft 11 and a leg-hooking module 2, wherein the top face of the end of the hollow main shaft 11 is provided with a series of securing plates 12. The securing plate 12 is a seat pad 13 fastened by means of screws and nuts. The top face of the other end of the main shaft is provided with a screw hole mount 14 installed with an adjustable button 15. The two lateral walls of the main shaft 11 corresponding to the middle section of the seat pad 13 is protruded out with an inner clutching member 16. The end face of the inner clutching

member 16 corresponding to one lateral side of the leg-hooking module 2 is protruded with a protruded engaging block 17. The interior of the inner clutching member 16 is provided with a shaft rod 18 for pivotal mounting of the framework 30. The threaded plugs 19 at the two ends of the shaft rod 18 limit the framework 30 from dislocation. The leg-hooking module 2 is a sliding rod 20 inserting to the main shaft 11. The top edge face of the sliding rod 20 is a series of adjusting holes 21 for adjustable of the length of the sliding rod 20 by means of the adjusting button 15 on the main shaft 11. One end of the sliding rod 20 is a semi-circular combining plate 22 and the two lateral sides of the combining plate 22 are formed into a long arch-slot 23 for mounting an inverted C-shaped leg-hooking rod 24. Screw nut 25 and mounts 26 are used so that the leg-hooking rod 24 can be mounted onto the combining plate 22, and the leg-hooking rod 24 can rotate about the sliding rod 20, as shown in FIG. 6.

The framework 30 includes a first supporting frame 31 and a second supporting frame 35 and the frames 31, 35 are pivotally mounted. The first supporting frame 31 can be fully closed to the inner edge of the second supporting frame 35. The top portions of the two ends of the first supporting frame 31 are respectively formed into the first clutching member 32, which is pivotally mounted to the shaft rod 18. The first clutching member 32 is

mounted at the external side of the inner clutching member 16 of the main shaft 11. The end face of the two lateral side of the first clutching member 32 are respectively formed into two protruded engaging blocks 33, 34 which are different from the protruded engaging block 17 of the inner clutching member 16 so that the pivotal movement of the moveable mechanism is restricted (disclosed in FIGS. 4B and 5B). The top sections of the two ends of the second supporting frame 35 are formed into a second clutching member 36 corresponding to the shaft rod 18. The second clutching member 36 is positioned at the external side of the first clutching member 32. The second clutching member 26 (corresponding to the end face of one lateral side of the first clutching member 32 is provided with a protruded engaging block 37 which is different from the protruded engaging block 33 of the first clutching member 32 so that the extended angle of the first and second supporting frame 31, 35 are restricted, as shown in FIGS. 4C and 5C.

The middle sections of the external edge at the two lateral sides of the second supporting frame 35 are mounted with a sloping upward insertion tube 38. The insertion tube 38 is an extended handgrip 40. The handgrip 40 is an insertion section 41 for mounting at the insertion tube 38. The top end of the handgrip 40 is mounted at the insertion tube 38. The top end of the handgrip 40 is mounted with an end plug 42 which can prevent slippery and

dislocation, and allows the user holds at the handgrip and manage the hand section.

The strong structure of the present invention is obtained and the extended structure is shown in FIG. 2. FIG. 3 shows the structure when folded.

For the operation of the abdominal exerciser of the present invention, reference had to FIGS. 2 to 5A, 5B and 5C. The first and second support frame 31, 35 of the framework 30 are extended outward. The protruded engaging blocks 33, 37 of the first and second clutching members 32, 36 are used to restrict the first and the second support frame 31, 35, as shown in FIG. 5C. When the first and second supporting frame 31, 35 have been extended to a certain angle, the extension will be stopped and the abdominal exerciser can be set on the floor, as shown in FIG. 2. The user can sit onto the seat pad 13 and the legs of the user will hook at the leg-hooking rod 24 of the leg-hooking module. Based on the length of the leg, the length of the leg-hooking rod 24 can be adjusted by means of the adjusting button 15 and the adjusting hole 21 on the sliding rod 20, and by the long slot 23 of the combining plate 22, the angle of the leg-hooking rod 24 (as shown in FIG. 6) can be adjusted and the user's leg can be firmly hooked onto the leg-hooking rod 24 to proceed with various exerciser accordance with the preset invention. When the user sits onto the seat pad 13, the center of gravity is at the outside

and due to the restriction of the protruded engaging blocks 17, 34, FIG 5B, the center of gravity will move backward slightly but will not fully turn over.

When the user wants to fold the exerciser, as disclosed in FIGS. 3, 4A, 4B, and 4C, the abdominal exerciser is lifted and the first supporting frame 31 can fully folded within the second supporting frame 35, and the main shaft 11 of the moveable mechanism 10 can also be fully positioned to the framework 30. Thus, the exerciser is folded and the space for storage is saved.

FIGS. 10 and 11A, 11B show another preferred embodiments. The main shaft 11 of the moveable mechanism 10, between two securing plates 12, is mounted with a twisting module 50. The twisting module 50 on the main shaft is mounted with a hollow clutching member 51, and the bottom edge of the clutching member 51 is provided with a protruded engaging block 52, and the clutching member 51 is welded with a downward protruded pivotal shaft 53 for the pivotal mounting of a clutching seat 55. The bottom end of the pivotal end is provided with a screw hole and a screw nut 54 is used to restrict the clutching seat 55. The clutching seat 55 is spacely mounted with hollow upright tube 56 and hollow horizontal tube 58, and the top face of the upright tube 56 has a protruded engaging block 57 which is different from the protruded engaging block 52 of the clutching member 51. The protruded engaging block 57 is suitably placed at the bottom end of the clutching

member 51, different from the range of the protruded engaging block 52 to form a restriction to the rotation.

Further, the end face of the two lateral sides of the horizontal tube 58 of the clutching seat 55, corresponding to one side of the leg-hooking module is provided with the protruded engaging block 59. The protruded engaging block 59 is corresponding to the range outside the protruded engaging block 34 of the first supporting frame 31 of the framework 30, and the horizontal tube of the clutching seat 55 is used for the mounting of the shaft rod 18 so that the moveable mechanism 10 can be pivotally mounted to the framework 30, as shown in FIG. 10. The user can twist the seat pad 13 to drive the moveable mechanism 10 to pivotally rotate about the framework 30 to form into a waist twisting exercise.

While the invention has been described with respect to preferred embodiments, it will be clear to those skilled in the art that modifications and improvements may be made to the invention without departing from the spirit and scope of the invention. Therefore, the invention is not to be limited by the specific illustrative embodiment, but only by the scope of the appended claims.

It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods

differing from the type described above.

While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.